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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,889	03/01/2004	Mary Morabito O'Neill	03W124	2628

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EXAMINER

WYATT, KEVIN S

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/790,889

Applicant(s)

O'NEILL ET AL.

Examiner

Kevin Wyatt

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 11-15 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 5-10 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1205.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claim 16 is objected to because of the following informalities:

In claim 16, line 2, the recited limitation, "a length of m blur diameters," is inconsistent with the recited limitations in claim 1, line 7, and claim 5, lines 1-2, "a length of n blur diameters," and n is equal to about 3m." If n is equal to 3m, n cannot be equal to m." Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 11-15, and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Hou (U.S. Patent No. 6,596,979 B2).

Regarding claim 1, Hou shows in Figs. 2-3 and 10, an imaging sensor system comprising an optics system that images a point feature (960, 968 and 970, i.e. scanning dots) of a scene at an image plane as a blur-circle image having a blur diameter; and a detector array (950, i.e. image sensor) at the image plane, wherein the detector array is a one-dimensional detector array comprising a plurality of detector subelements (962-967, i.e. photodetectors) each having a width of from about 1/2 to about 5 blur diameters (1 blur diameter is equivalent to

from approximately the area of a single detector to approximately $1/2$ the area of 3 adjacent detectors according to col. 10, lines 12-18), and a length of n blur diameters (n is approximately equal to the width of the detector if detector is approximately square), wherein each detector subelement overlaps each of two adjacent detector subelements along their lengths, wherein an overlap of each of the two adjacent detector subelements is m blur diameters (shifted alternatively by a distance (D) and (D) is in general, preferably $1/2$ size of a photodetector, col. 9, lines 59-60) and a center-to-center spacing of each of the two adjacent detector subelements is n_0 blur diameters (or $2D$), and wherein n is equal to about $3m$ and m is equal to about $n_0/2$ (col. 9, lines 59-60 implies that a tolerance of plus or minus D may fall within these measurements).

Regarding claim 2, Hou discloses that the detector subelements each have a width of about 1 blur diameter (1 blur diameter corresponds to the area of a single detector to approximately $1/2$ the area of 3 adjacent detectors according to col. 10, lines 12-18).

Regarding claim 3, Hou discloses that n lies in a range of from about $(3m - 2)$ to about $(3m + 2)$, and m lies in a range of from about $(n_0/2 - 1)$ to from $(n_0/2 + 1)$ (according to claim 1, if D corresponds to m , and $3D$ corresponds to n , then both m and n fall within the recited ranges).

Regarding claim 4, Hou discloses that n lies in a range of from $(3m - 2)$ to $(3m + 2)$, and m lies in a range of from $(n_0/2 - 1)$ to $(n_0/2 + 1)$ (according to claim 1, if D corresponds to m , and $3D$ corresponds to n , then both m and n fall within the recited ranges).

Regarding claim 11, Hou discloses a scanning mechanism that scans the one-dimensional detector array in a scanning direction perpendicular to the length of the detector subelements (col. 5, lines 39-42).

Regarding claim 12, Hou discloses a scanning mechanism that includes a moving platform upon which the one-dimensional detector array is mounted (col. 5, lines 39-42).

Regarding claim 13, Hou shows in Figs. 2A and 10, an imaging sensor system comprising an optics system (208, i.e., rod lens array) that images a point feature of a scene at an image plane as a blur-circle image having a blur-circle diameter (960, 968, 970, i.e., scanning dots); and a detector array (250, photodetector array) at the image plane, wherein the detector array is a two-dimensional detector array comprising a plurality of detector subelements, and wherein the detector subelements are sized and staggered such that an area of the blur-circle image may not simultaneously be split equally among four detector subelements.

Regarding claim 14, Hou shows in Figs. 3 and 10, the detector subelements are square in plan view (col. 6, lines 39-40).

Regarding claim 15, Hou shows in Fig. 10, the detector subelements are rectangular in plan view (col. 6, lines 39-40).

Regarding claim 17, Hou shows in Figs. 2A-2B, 3 and 10, a method for locating a position of a feature in a scene, comprising the steps of forming an image of the feature using a segmented array having a plurality of array subelements, wherein each of the array subelements has an output signal (col. 5,

Art Unit: 2878

lines 27-35); and cooperatively analyzing the output signals from at least two spatially adjacent array subelements to establish a data set reflective of an extent to which output signals responsive to the image of the feature are produced from exactly one or from more than one of the adjacent array subelements (col. 5, lines 48-57), and to reach a conclusion from the data set as to a location of the image of the feature on the segmented array (col. 5, lines 57-60).

Regarding claim 18, Hou shows in Fig. 10 a method wherein the step of providing a sensor includes the step of providing a one-dimensional segmented array having spatially overlapping array subelements.

Regarding claim 19, Hou shows in Fig. 10 a method wherein the step of providing a sensor includes the step of providing a two-dimensional segmented array formed of a pattern of intersecting array subelements.

Regarding claim 20, Hou shows in Figs. 9A-9B, wherein the step of providing a sensor includes the step of providing a two-dimensional segmented array formed of a pattern of square array subelements, wherein four of the square array subelements meet at an intersection point (col. 9, lines 21-24), and wherein the step of forming an image includes the step of forming the image having a diameter of one blur diameter.

Allowable Subject Matter

4. Claims 5-10 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

Claim 5, is allowable because the prior art fails to disclose or make obvious, either singly or in combination, an imaging sensor system, comprising, in addition to the other recited features of the claim, detector subelements wherein n is equal to $3m$ and m is equal to $n_0/2$.

Claim 6, is allowable because the prior art fails to disclose or make obvious, either singly or in combination, an imaging sensor system, comprising, in addition to the other recited features of the claim, detector subelements having a length of at least 20 times the detector width, and wherein n is substantially equal to $3m$ and m is substantially equal to $n_0/2$.

Claim 7 is allowable because the prior art fails to disclose or make obvious, either singly or in combination, an imaging sensor system, comprising, in addition to the other recited features of the claim, detector subelements wherein n is substantially equal to $(3m-2)$ and m is substantially equal to $(n_0/2-1)$.

Claim 8 is allowable because the prior art fails to disclose or make obvious, either singly or in combination, an imaging sensor system, comprising, in addition to the other recited features of the claim, detector subelements having a length of less than 20 times the detector width, and wherein n is substantially equal to $(3m-2)$ and m is substantially equal to $(n_0/2-1)$.

Claim 9 is allowable because the prior art fails to disclose or make obvious, either singly or in combination, an imaging sensor system, comprising, in addition to the other recited features of the claim, detector subelements

Art Unit: 2878

wherein n is substantially equal to $(3m+2)$ and m is substantially equal to $(n_0/2+1)$.

Claim 10 is allowable because the prior art fails to disclose or make obvious, either singly or in combination, an imaging sensor system, comprising, in addition to the other recited features of the claim, detector subelements having a length of less than 20 times the detector width, and wherein n is substantially equal to $(3m+2)$ and m is substantially equal to $(n_0/2+1)$.

Claim 16 is allowable because the prior art fails to disclose or make obvious, either singly or in combination, an imaging sensor system, comprising, in addition to the other recited features of the claim, detector subelements having a lengthwise overlap of 1 blur diameter relative to a laterally adjacent detector subelement.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chen (U.S. 2004/0031904 A1) discloses an apparatus of linear staggered sensors.

Francke (U.S. 2003/0155518 A1) discloses a radiation detector arrangement.

Ochi (U.S. Patent No. 4,441,123) discloses a photosensor pattern of solid-state imaging sensors.

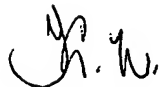
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Wyatt whose telephone number is

Art Unit: 2878

(571)-272-5974. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571)-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



K.W.



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